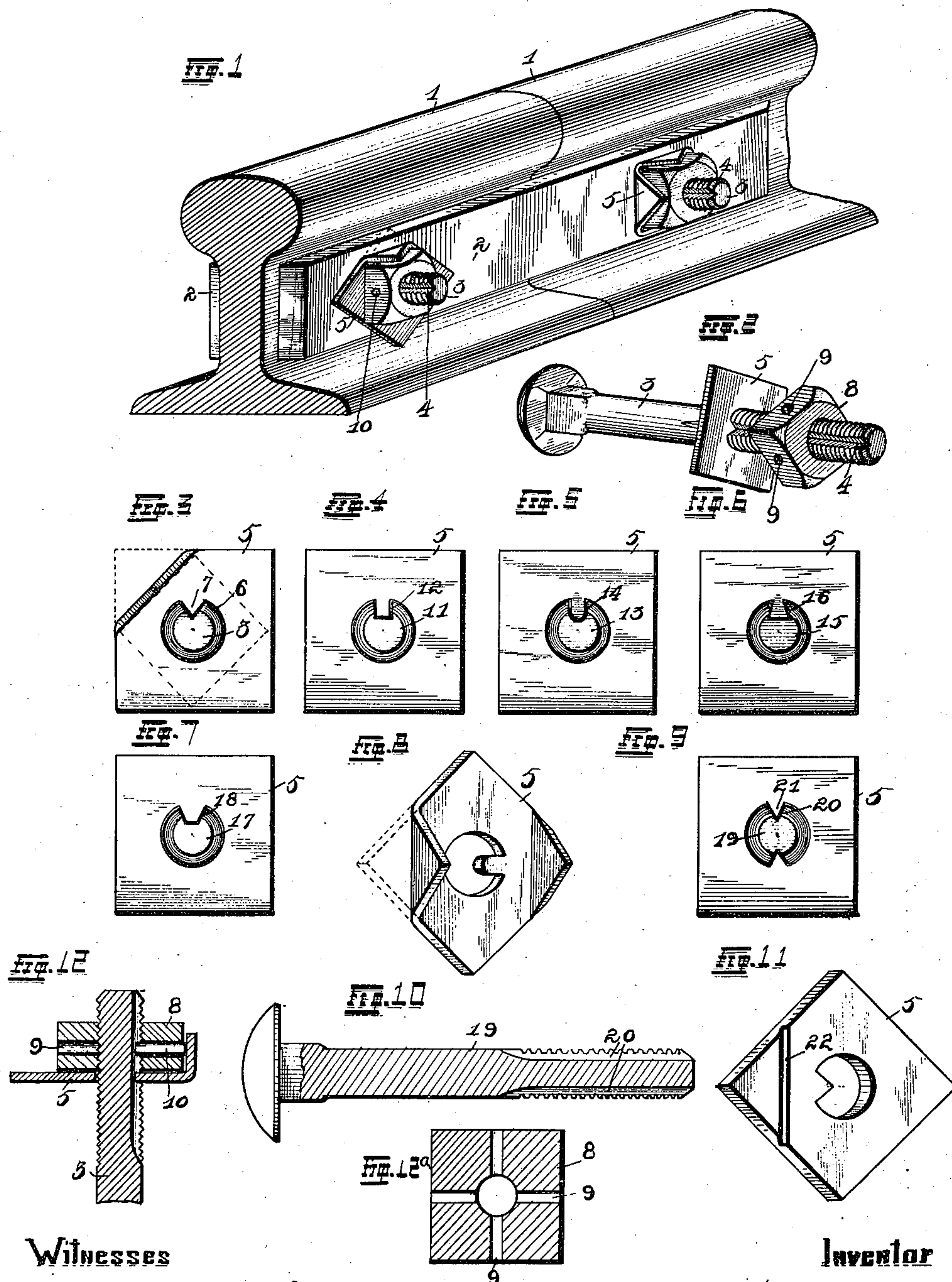


(No Model.)

J. G. DULANY.
NUT LOCK.

No. 498,208.

Patented May 23, 1893.



Witnesses

Alfred A. Eicher
Herbert C. Robinson

Inventor

James G. Dulany,

By Higdon and Higdon and Longan, Attorneys

UNITED STATES PATENT OFFICE.

JAMES G. DULANY, OF HANNIBAL, MISSOURI, ASSIGNOR OF ONE-THIRD TO
JOHN T. LIGHTER, OF SAME PLACE.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 498,208, dated May 23, 1893.

Application filed January 21, 1893. Serial No. 459,175. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. DULANY, of the city of Hannibal, Marion county, and State of Missouri, have invented certain new and useful Improvements in Nut-Locks, of which the following is a full, clear, and exact description; reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in nut locks and consists in the novel arrangement and combination of parts, as will be more fully hereinafter described and designated in the claims.

The object of my invention is to construct an improved device for locking nuts, said device serving as a washer and when in position absolutely prevents the moving of the nut in either direction.

In the drawings:—Figure 1, is a perspective view of my invention applied to the meeting points of two rails and holding the connecting-plates to said rails. Fig. 2 is a perspective view of my invention removed from any connection with other constructions. Fig. 3 is a plan view of the bolt and lock and showing in dotted lines the position of the nut, one corner of said lock being in engagement with the nut. Figs. 4, 5, 6 and 7 are plan views of the bolt and lock, showing modified forms of the engagement between said lock and said bolt. Fig. 8, is a perspective view of the modification shown in Fig. 5, with the bolt removed, and showing two of the corners of the lock turned into position for engagement with the nut. Fig. 9, is a plan view of the lock and bolt and shows an additional modification. Fig. 10 is a longitudinal sectional view made use of in the modification shown in Fig. 9. Fig. 11 is a perspective view of the lock shown in Figs. 1, 2 and 3, the same being provided with a groove or depression to enable the bending of the corner against the nut. Fig. 12 is a sectional view of the bolt, nut and lock shown in Fig. 1, with a pin through said nut engaging the slot in said bolt, and the lock holding said pin in position. Fig. 12^a is a modified sectional view of the nut.

Referring to the drawings:—1 indicates the adjoining ends of two ordinary T-rails such

as used in railway constructions and herein shown to set forth the application of my invention.

2 indicates longitudinal plates located upon both sides of the rail between the tread and the base flange. Bolts 3 pass through said plates 2 and rail 1, and are provided throughout substantially one-half of their length with a V-shaped groove 4.

The lock-washer 5 consists of a rectangular plate made of brass, copper, galvanized iron, Russia-iron, or in fact any of the well-known sheet-metals. The lock-washer 5 is provided with a central opening 6, the same in diameter as the bolt 3 and projecting into the opening 6 is an inverted V-shaped projection 7 formed integrally with the remaining portion of the lock-washer 5. The projection 6 is of the same size as the grooves 4 in the bolts 3 and is adapted to engage in the same to prevent the turning of the lock-washer around the bolt when the nut is tightened against the same. The nut 8 is provided with an inwardly extending opening 9 in which is located a pin 10, the inner end of which conforms with the shape of the groove 4, into which it is adapted to engage. The nut 8 can be provided with one pin opening as shown in Fig. 1, two pin openings as shown in Fig. 12 and four as shown in Fig. 12^a or rather would be provided with these numbers of openings 9, only one pin being necessary for each nut. The object of having a multiplicity of openings 9 for the reception of the pins 10, is that the pin may be put in the opening nearest the groove when the nut is set, because the nut can usually be tightened enough to bring said pin into said groove. The nut having been set as shown in Fig. 1, one or more of the corners of the lock-washer 5 are bent at right angles with the main portion of the lock washer and against the sides of the nuts and they absolutely prevent the backing of the nut off the threads. The corner facing the end of the pin 10 is necessarily bent to hold said pin, and it is unnecessary to bend any of the other corners unless it is so desired.

In Fig. 4 is shown a modified construction, the bolt 11 being provided with a rectangu-

lar groove 12, into which a coincident projection into the opening of the washer is adapted to fit.

5 In Fig. 5 is shown a modification wherein the bolt 13 is provided with a U-shaped groove 14, and the lock-washer with a coincidingly shaped projection.

10 In Fig. 6 is shown an additional modification wherein the groove in the bolt 15 is of dove-tailed form, said groove 16 adapted for the reception of a similarly shaped projection upon the lock-washer.

15 In Fig. 7 is shown the bolt 17 with a groove 18 which is adapted for the reception of a projection upon the washer, which is substantially of a truncated conical form when viewed in plan elevation.

20 In Fig. 9 is shown an additional modification wherein the bolt 19 is provided with two longitudinal grooves 20 which are V-shaped and adapted to receive coincidingly shaped projections 21 on the lock-washer.

25 In Fig. 11 I show the lock-washer provided with grooves 22, which extend across one corner of the rectangular shape of the washer, this groove being provided to enable the operators to more readily turn the corner of the lock up against the nut.

30 Although not herein shown, said lock-washer could be provided with a multiplicity of these grooves extending across the corners of same without in any way weakening the construction of the washer or affecting the material idea of my invention.

35 I wish to specially emphasize the stability of the lock as herein described and shown, as from practical experiments I find that the nut when set and locked is absolutely irremovable.

When it is desired to remove the nut, the 40 washer corners which are turned up, are easily forced back into their normal plane, thus enabling the removal of the nut, the material of which the lock-washer is made permitting 45 of repetition of this operation a number of times without affecting the strength of the lock. It will readily be seen how the location of the pin engaging as it does a groove, and the additional locking of the nut by the bending of the washer corner carries out the idea 50 of my invention.

The modified forms of grooves and projections shown, are all used in connection with the pins, as this construction facilitates a surer locking of the parts and does not in any 55 way weaken the nut.

Having fully described my invention, what I claim is—

As an improvement in nut-locks, the combination, with a bolt provided with one or 60 more longitudinal grooves, a nut adapted to be disposed thereon and provided with one or more transverse bores or apertures, and a pin insertible in one of the latter and into one of the bolt grooves, of a lock-washer pro- 65 vided in its eye with one or more projecting studs adapted to engage the groove or grooves in the bolt, said washer being adapted to have one of its corners bent over the side of the nut containing the pin; substantially as set 70 forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES G. DULANY.

Witnesses:

HERBERT S. ROBINSON,
ALFRED A. EICKS.